

# **Clinical Decision Support (CDS) Content and Health Level 7 (HL7)- Compliant Knowledge Artifacts (KNARTs)**

## **Eye Care Clinical Content White Paper**

**Department of Veterans Affairs (VA)**



**Knowledge Based Systems (KBS)  
Office of Informatics and Information Governance (OIIG)  
Clinical Decision Support (CDS)**

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Date	Revision	Description	Author
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2018-09-27	2.0	Add "Revision History" Table to document  Revise first paragraph of Section 1.1 "Clinical Context"	Diane Montella, MD, Apurva Desai, VA KBS Team

# **Clinical Decision Support (CDS) Content and Health Level 7 (HL7)-Compliant Knowledge Artifacts (KNARTs): Eye Care Clinical Content White Paper**

by Department of Veterans Affairs (VA)

Publication date June 2018

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**Table 1. Relevant KNART Information: Eye Care**

Eye Care KNART	Associated CLIN
Eye Care – Documentation Template	CLIN0009DA

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# Introduction

The VA is committed to improving the ability of clinicians to provide care for patients while increasing quality, safety, and efficiency. Recognizing the importance of standardizing clinical knowledge in support of this goal, VA is applying the Health Level 7 (HL7) Knowledge Artifact Specification for a wide range of VA clinical use cases. Knowledge Artifacts, referred to as (KNARTs), enable the structuring and encoding of clinical knowledge so the knowledge can be integrated with electronic health records to enable clinical decision support.

The purpose of this Clinical Content White Paper (CCWP) is to capture the clinical context and intent of KNART use cases in sufficient detail to provide the KNART authoring team with the clinical source material to construct the corresponding knowledge artifacts using the HL7 Knowledge Artifact Specification. This paper has been developed using material from a variety of sources: VA artifacts, clinical practice guidelines, evidence in the body of medical literature, and clinical expertise. After reviewing these sources, the material has been synthesized and harmonized under the guidance of VA subject matter experts to reflect clinical intent for this use case.

Unless otherwise noted, items within this white paper (e.g., documentation template fields, orderable items, etc.) are chosen to reflect the clinical intent at the time of creation. To provide an exhaustive list of all possible items and their variations is beyond the scope of this work.

# Conventions Used

Conventions used within the knowledge artifact descriptions include:

<obtain>: Indicates a prompt to obtain the information listed

- If possible, the requested information should be obtained from the underlying system(s). Otherwise, prompting the user for information may be required
- The technical and clinical notes associated with a section should be consulted for specific constraints on the information (e.g., time-frame, patient interview, etc.)
- Default Values: Unless otherwise noted, <obtain> indicates to obtain the most recent observation. It is recognized that this default time-frame value may be altered by future implementations

[...]: Square brackets enclose explanatory text that indicates some action on the part of the clinical user, or general guidance to the clinical or technical teams. Examples include, but are not limited to:

[Begin ...], [End ...]: Indicates the start and end of specific areas to clearly delineate them for technical purposes.

[Activate ...]: Initiates another knowledge artifact or knowledge artifact section.

[Section Prompt: ...]: If this section is applicable, then the following prompt should be displayed to the user.

[Section Selection Behavior: ...]: Indicates technical constraints or considerations for the selection of items within the section.

[Attach: ...]: Indicates that the specified item should be attached to the documentation template if available.

[Link: ...]: Indicates that rather than attaching an item, a link should be included in the documentation template.

[Clinical Comment: ...]: Indicates clinical rationale or guidance.

[Technical Note: ...]: Indicates technical considerations or notes.

[If ...]: Indicates the beginning of a conditional section.

[Else, ...]: Indicates the beginning of the alternative branch of a conditional section.

[End if ...]: Indicates the end of a conditional section.

[Check box]: Indicates items that should be selected based upon the section selection behavior.

# Chapter 1 - Eye Care

## Section 1.1 - Clinical Context

[Begin Clinical Context. Text in the Clinical Context section appears here as reference information for the reader of this white paper, and is not intended to appear in a clinically implemented knowledge artifact.

The Veterans Health Administration seeks to standardize eye care data output from routine clinical documentation in support of quality clinical care delivery, performance improvement, interoperability across health care platforms, and clinical research activities. Prototype work has been done in both the DoD/VA Vision Center of Excellence (Optimal Vision Care Prototype) and the VA (Eye Care SmartForm) to define eye care documentation requirements and to promote standardized data output; however, that prototype work has not been implemented. This draft documentation template content goes a step farther than earlier projects by conforming to HL7 standards for clinical decision support, furthering the aim of an easily shareable tool with shareable data output from routine clinical documentation.

**Table 1.1. Clinical Context Domains**

<b>Target User</b>	Provider in an Ophthalmology or Optometry clinic
<b>Patient</b>	Adult outpatient
<b>Priority</b>	Routine
<b>Specialty</b>	Eye Care
<b>Location</b>	Outpatient

[End Clinical Context.]

## Section 1.2 - Knowledge Artifacts

[Begin Knowledge Artifacts.]

This Clinical Content White Paper includes one knowledge artifact, a documentation template as defined by the HL7 CDS KNART specification.

This section describes the single CDS KNART that is included in the Eye Care group:

- A Documentation Template: Eye Care KNART
  - Documents information recorded during an eye exam.
  - Includes logic for appropriate display of documentation sections.

[End Knowledge Artifacts.]

# Chapter 2 - Documentation Template: Eye Care

[Begin Eye Care Documentation Template.]

## Section 2.1 - Knowledge Narrative

[Begin Knowledge Narrative. Text in the Knowledge Narrative section appears here as reference information for the reader of this white paper, and is not intended to appear in a clinically implemented knowledge artifact.]

Maintaining vision is an important part of maintaining functional independence. In addition to loss of vision, eye diseases can cause significant symptoms and may represent manifestations of systemic conditions. As a result, eye care is a key component of medical care. The development of standardized, structured data elements has contributed to improvements in patient care, performance improvement, reporting, and research (Eleu Pacific Partners, March 2015). However, such documentation practices have not been consistently implemented. The development of a standardized, structured, comprehensive eye care documentation template that can be used across the VA system has the potential to lead to better integration of care, further performance improvement, ease reporting, and enable enhanced research capabilities.

[End Knowledge Narrative.]

## Section 2.2 - Chief Complaint/Reason for Visit

[Begin Chief Complaint/Reason for Visit.]

[Section Prompt: Is this a returning patient?]

[Section Selection Behavior: Select one, required.]

Yes

[Technical Note: Auto populate prior visit date (s).]

<obtain> Prior visit date (s)

No

[Section Prompt: Chief Complaint/Reason for Visit]

[Section Selection Behavior: Select any. One selection is required.]

Routine Eye Exam

Eye Symptoms

Blurred Vision

Both Eyes

Right Eye

Left Eye

Eye Pain

Both Eyes

Right Eye

Left Eye

Other

Both Eyes

Right Eye

Left Eye

<obtain> Details

Follow up Visit

Glaucoma Suspect

Glaucoma

Diabetic Retinopathy

Cataract

Macular Degeneration

Other

<obtain> Details

Post-Op Visit

<obtain> Procedure

<obtain> Procedure Date

Both Eyes

Right Eye

Left Eye

<obtain> Additional Information

[End Chief Complaint/Reason for Visit.]

## Section 2.3 - History of Present Illness

[Begin History of Present Illness.]

<obtain> Symptoms

<obtain> Duration of symptoms

<obtain> Severity

<obtain> Laterality

<obtain> Other details

[End History of Present Illness.]

## Section 2.4 - Past Ocular History

[Begin Past Ocular History.]

[Technical Note: Provide link to Most Recent Ophthalmology visit note.]

### Section 2.4.1. - Eye Conditions

[Begin Eye Conditions.]

[Technical Note: Pre-populate from the electronic medical record history if data available. Allow all data to be updated.]

[Section Prompt: Eye Conditions.]

[Section Selection Behavior: Select any or none. Optional.]

- Age-Related Macular Degeneration (AMD)

[Technical Note: Link to Age-Related Eye Disease Study (AREDS) AMD Category definitions <https://www.aaopt.org/preferred-practice-pattern/age-related-macular-degeneration-ppp-2015>.]

[Section Prompt: the following AMD classification system is adapted from American Academy of Ophthalmology's 2015 Age-Related Macular Degeneration Preferred Practice Pattern Guidelines (American Academy of Ophthalmology Retina/Vitreous Panel, 2015).]

[Technical Note: Allow user to hover over the link and reveal an informational flyout box with the classification outlined below.]

Age-related macular degeneration (AMD) is a disorder of the macula characterized by one or more of the following (for specific terms, see Glossary):

- Presence of at least intermediate-size drusen (63  $\mu\text{m}$  or larger in diameter)
- Retinal pigment epithelium (RPE) abnormalities such as hypopigmentation or hyperpigmentation
- Reticular pseudodrusen<sup>4</sup>
- Presence of any of the following features: geographic atrophy of the RPE, choroidal neovascularization (exudative, wet), polypoidal choroidal vasculopathy, or retinal angiomatous proliferation.
- There are a number of classifications of AMD in the literature. This Preferred Practice Pattern uses the classification of the Age-Related Eye Disease Study (AREDS) and a more recent clinical classification<sup>5</sup> to define the early and intermediate stages of AMD since current treatment recommendations are based on these classifications. The AREDS was a prospective multicenter randomized clinical trial conducted between 1992 and 2006 designed to assess the natural course and risk factors for age-related cataract and AMD. The effects of antioxidant vitamins and minerals on these two ocular conditions were studied.

The classification of AMD from the AREDS is as follows:<sup>6</sup>

- **No AMD** (AREDS category 1) represented the control group; it is characterized by no or few small drusen (<63  $\mu\text{m}$  in diameter).
- **Early AMD** (AREDS category 2) is characterized by a combination of multiple small drusen, few intermediate drusen (63–124  $\mu\text{m}$  in diameter), or mild RPE abnormalities.
- **Intermediate AMD** (AREDS category 3) is characterized by any of the following features:
  - Numerous intermediate drusen
  - At least one large druse (125  $\mu\text{m}$  or larger in diameter)
  - Geographic atrophy (a sharply demarcated, usually round or oval, area of atrophy of the RPE not involving the center of the fovea)
- **Advanced AMD** (AREDS category 4) is characterized by one or more of the following (in the absence of other causes) in one eye:

- Geographic atrophy of the RPE involving the foveal center
- Neovascular maculopathy that includes the following:
  - Choroidal neovascularization (CNV) defined as pathologic angiogenesis originating from the choroidal vasculature that extends through a defect in Bruch's membrane
  - Serous and/or hemorrhagic detachment of the neurosensory retina or RPE  
Retinal hard exudates (a secondary phenomenon resulting from chronic intravascular leakage)
  - Subretinal and sub-RPE fibrovascular proliferation
  - Disciform scar (subretinal fibrosis)

Early AMD

Right Eye

Left Eye

<obtain> Description

Intermediate AMD

Right Eye

Left Eye

<obtain> Description

Advanced AMD: Neovascular

Right Eye

Left Eye

<obtain> Description

Advanced AMD: Geographic Atrophy

Right Eye

Left Eye

<obtain> Description

Amblyopia

Both Eyes

Right Eye

Left Eye

<obtain> Description

Blepharitis

<obtain> Description

Blindness

Both Eyes

Right Eye

Left Eye

<obtain> Description

Cataract

Both Eyes

Right Eye

Left Eye

<obtain> Description

Chalazion

Both Eyes

Right Eye

Left Eye

<obtain> Description

Corneal Guttata

Both Eyes

Right Eye

Left Eye

<obtain> Description

Cystoid Macular Edema

Both Eyes

Right Eye

Left Eye

<obtain> Description

Diabetes Mellitus without Retinopathy

Both Eyes

Right Eye

Left Eye

<obtain> Description

Diabetic Retinopathy

[Technical Note: If Diabetic Retinopathy is selected, provide a link <https://www.aaopt.org/preferred-practice-pattern/diabetic-retinopathy-ppp-updated-2017>]

[Technical Note: Allow user to hover over the link and reveal an informational flyout box with the classification outlined below.]

- **No apparent retinopathy:** No abnormalities
- **Mild Nonproliferative Retinopathy (NPDR):** Microaneurysms only
- **Moderate NPDR:** More than just microaneurysms but less than severe NPD
- **Severe NPDR:** Any of the following and no signs of proliferative retinopathy:
  - Severe intraretinal hemorrhages and microaneurysms in each of the four quadrants
  - Definite venous bleeding in two or more quadrants
  - Moderate IRMA in one or more quadrants
- **Proliferative Retinopathy (PDR):** One or both of the following.
  - Neovascularization
  - Vitreous/preretinal hemorrhage
- **High-Risk PDR:** The presence of at least three of the following findings:
  - Neovascularization (at any location)
  - Neovascularization at the optic disc
  - Severe neovascularization:
    - New vessels within one-disc diameter of the optic nerve head that are larger than one-quarter to one-third disc area in size
    - New vessels elsewhere that are at least one-half disc area in size
  - Vitreous or preretinal hemorrhage
- **Clinically Significant Macular Edema** is defined by the ETDRS to include any of the following features:
  - Thickening of the retina at or within 500 um of the center of the macula
  - Hard exudates at or within 500 um of the center of the macula, when associated with adjacent retinal thickening.
  - A zone or zones of retinal thickening one disc area or larger, where any portion of the thickening is within one disc diameter of the center of the macula.

[Section Prompt: Diabetic retinopathy definitions are adapted from American Academy of Ophthalmology's Diabetic Retinopathy Preferred Practice Pattern, updated 2017 (American Academy of Ophthalmology Retina/Vitreous Panel, 2016).]

Mild Nonproliferative Diabetic Retinopathy

Right Eye

Left Eye

<obtain> Description

Moderate Nonproliferative Diabetic Retinopathy

Right Eye

Left Eye

<obtain> Description

Severe Nonproliferative Diabetic Retinopathy

Right Eye

Left Eye

<obtain> Description

Non-High-Risk Proliferative Diabetic Retinopathy

Right Eye

Left Eye

<obtain> Description

High Risk Proliferative Diabetic Retinopathy

Right Eye

Left Eye

<obtain> Description

Clinically Significant Diabetic Macular Edema

Right Eye

Left Eye

<obtain> Description

Dry Eye

Both Eyes

Right Eye

Left Eye

<obtain> Description

Endophthalmitis

Both Eyes

Right Eye

Left Eye

<obtain> Description

Epiretinal Membrane

Both Eyes

Right Eye

Left Eye

<obtain> Description

Eye Trauma

- Both Eyes
- Right Eye
- Left Eye
- Nature of Injury
  - Blunt  
<obtain> Description
  - Penetrating  
<obtain> Description
  - Chemical  
<obtain> Description
  - Optic Nerve  
<obtain> Description
  - Other  
<obtain> Description

[Section Prompt: Date of Injury]

- On  
<obtain> Date
- About  
<obtain> Number of Increments Ago
  - Days ago
  - Weeks ago
  - Months ago
  - Years ago
- Around
  - January
  - February
  - March
  - April
  - May
  - June

- July
- August
- September
- October
- November
- December

Year

<obtain> Year

During

- Winter of
- Spring of
- Summer of
- Autumn of

Year

<obtain> Year

Unknown

[Section Prompt: Add another injury?]

[Technical Note: If “yes” is selected below, present the questions above again.]

Yes

Fuchs Endothelial Corneal Dystrophy

- Both Eyes
- Right Eye
- Left Eye

<obtain> Description

Glaucoma Suspect

[Technical Note: If glaucoma suspect is selected, provide a link <https://www.aao.org/preferred-practice-pattern/primary-open-angle-glaucoma-suspect-ppp-update-201>]

- Both Eyes
- Right Eye
- Left Eye

<obtain> Description

Physiologic Cupping/Asymmetry

Both Eyes

Right Eye

Left Eye

<obtain> Description

Ocular Hypertension

Both Eyes

Right Eye

Left Eye

<obtain> Description

Glaucoma

[Technical Note: If glaucoma is selected, provide a link <https://www.aao.org/preferred-practice-pattern/primary-open-angle-glaucoma-ppp-update-2018>]

[Section Prompt: Type of Glaucoma]

Open-Angle Glaucoma (OAG)

Right Eye

Left Eye

Narrow Angle Glaucoma (NAG)

Right Eye

Left Eye

Secondary Glaucoma

<obtain> Description

[Section Prompt: Disease definition, clinical findings, and severity categories derived from the American Academy of Ophthalmology's Preferred Pattern for Primary Open Angle Glaucoma.]

[Technical Note: Please make the following guidance viewable via "hover to discover"]

**DISEASE DEFINITION**

Primary open-angle glaucoma (POAG) is a chronic, progressive optic neuropathy in adults in which there is a characteristic acquired atrophy of the optic nerve and loss of retinal ganglion cells and their axons. This condition is associated with an open anterior chamber angle by gonioscopy.

**CLINICAL FINDINGS CHARACTERISTIC OF PRIMARY OPEN-ANGLE GLAUCOMA**

Primary open-angle glaucoma (POAG) is a chronic, progressive optic neuropathy in adults in which there is a characteristic acquired atrophy of the optic nerve and loss of retinal ganglion cells and their axons. This condition is associated with an open anterior chamber angle by gonioscopy.

Primary open-angle glaucoma is a chronic ocular disease process that is progressive, generally bilateral, but often asymmetric. It is associated with the following characteristics.

- Evidence of optic nerve damage from either, or both, of the following:
  - Optic disc or retinal nerve fiber layer (RNFL) structural abnormalities
    - Diffuse or focal narrowing, or notching, of the optic disc rim, especially at the inferior or superior poles, which forms the basis for the ISNT rule (see subsection on optic nerve head and retinal nerve fiber layer clinical examination in the Physical Exam section)
    - Progressive narrowing of the neuroretinal rim with an associated increase in cupping of the optic nerve
    - Diffuse or localized abnormalities of the parapapillary RNFL, especially at the inferior or superior poles
    - Disk rim, parapapillary RNFL, or lamina cribrosa hemorrhages
    - Optic disc neural rim asymmetry of the two eyes consistent with loss of neural tissue
    - Large extent of parapapillary atrophy
  - Reliable and reproducible visual field abnormality considered a valid representation of the subject's functional status
    - Visual field damage consistent with RNFL damage (e.g., nasal step, arcuate field defect, or paracentral depression in clusters of test sites)
    - Visual field loss across the horizontal midline in one hemifield that exceeds loss in the opposite hemifield (in early/moderate cases)
    - Absence of other known explanations (e.g., disc drusen, optic nerve pit)
- Adult Onset
- Open anterior chamber angles
- Absence of other known explanations (i.e., secondary glaucoma) for progressive glaucomatous optic nerve change (e.g., pigment dispersion, pseudoexfoliation [exfoliation syndrome], uveitis, trauma, and corticosteroid use)

Primary open-angle glaucoma represents a spectrum of disease in adults in which the susceptibility of the optic nerve to damage varies among patients. Although many patients with PAOG present with elevated intraocular pressure (IOP), nearly 40% of those with otherwise characteristic POAG many not have elevated IOP measurements. The vast majority of patients with POAG have disc changes or disc and visual field changes, but there are rare cases where there may be early visual field changes before there are detectable changes to the optic nerve.

The severity of glaucoma damage can be estimated according to the following categories:

- **Mild:** definite optic disc or RNFL abnormalities consistent with glaucoma as detailed above and a normal visual field as tested with standard automated perimetry (SAP)
- **Moderate:** definite optic disc or RNFL abnormalities consistent with glaucoma as detailed above, and visual field abnormalities in one hemifield that are not within 5 degrees of fixation in at least one hemifield as tested with SAP
- **Severe:** definite optic disc or RNFL abnormalities consistent with glaucoma as detailed above, and visual field abnormalities in both hemifields and/or loss within 5 degrees of fixation in at least one hemifield as tested with SAP
- **Indeterminate:** definite optic disc or RNFL abnormalities consistent with glaucoma as detailed above, inability of patient to perform visual field testing, unreliable/uninterpretable visual field test results, or visual fields not performed yet

[Section Prompt: For assistance with glaucoma billing codes: ICD-10 Glaucoma Staging Definitions, American Academy of Ophthalmology website: <https://www.aao.org/practice-management/news-detail/icd-10-glaucoma-staging-definitions>]

- Mild Glaucoma
  - Both Eyes
  - Right Eye
  - Left Eye

<obtain> Description

- Moderate Glaucoma
  - Both Eyes
  - Right Eye
  - Left Eye

<obtain> Description

- Severe Glaucoma
  - Both Eyes
  - Right Eye
  - Left Eye

<obtain> Description

- Indeterminate Glaucoma
  - Both Eyes
  - Right Eye
  - Left Eye

<obtain> Description

<obtain> Target Intraocular Pressure Right Eye (mm Hg)

<obtain> Target Intraocular Pressure Left Eye (mm Hg)

- Macular Hole
  - Both Eyes
  - Right Eye
  - Left Eye

<obtain> Description

- Nonglaucomatous Visual Field Defects

Both Eyes

Right Eye

Left Eye

<obtain> Description

Optic Atrophy

Both Eyes

Right Eye

Left Eye

<obtain> Description

Pseudophakia

Both Eyes

Right Eye

Left Eye

<obtain> Description

Pterygium

Both Eyes

Right Eye

Left Eye

<obtain> Description

Retinal Detachment

Both Eyes

Right Eye

Left Eye

<obtain> Description

Retinal Tear or Hole

Both Eyes

Right Eye

Left Eye

<obtain> Description

Strabismus

Both Eyes

Right Eye

Left Eye

<obtain> Description

Other

Both Eyes

Right Eye

Left Eye

<obtain> Description

<obtain> Additional Details

[End Conditions.]

[End Past Ocular History.]

## Section 2.5 - Past Ocular Procedures

[Begin Past Ocular Procedures.]

[Technical Note: Pre-populate fields based on history. Allow all fields to be updated. Allow user to enter multiple procedures by selecting “Yes” for “Add Another [Procedure Name].”]

[Section Prompt: Past Ocular Procedures]

[Section Selection Behavior: One or more. Optional]

Cataract Surgery

Corneal Surgery

Refractive Surgery

YAG (Yttrium Aluminum Garnet) Laser Capsulotomy

Cyclodestruction

Goniotomy

Laser Iridotomy

Laser Trabeculoplasty

Minimally Invasive Glaucoma Surgery

Trabeculectomy

Tube Shunt

Focal Macular Laser Retina

Intravitreal Injection

- Panretinal Photocoagulation
- Posterior Vitrectomy
- Retinal Detachment Repair (Scleral Buckle)
- Retinopexy
- Blepharoplasty
- Enucleation
- Ptosis Repair
- Strabismus Surgery

[Technical Note: Activate the associated sub-sections associated with the “Past Ocular Procedures” checkboxes selected.]

- Cataract Surgery
  - Right Eye
    - No Complications
    - Complications
      - Anterior Vitrectomy
      - Vitreous Loss
      - Dropped Lens

<obtain> Description

[Section Prompt: Lens Type]

- Standard Lens (Monofocal Lens)
- Multifocal Lens
- Toric Lens
- Accommodating Lens

Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

Left Eye

No Complications

Complications

Anterior Vitrectomy

Vitreous Loss

Dropped Lens

<obtain> Description

[Section Prompt: Lens Type]

- Standard Lens (Monofocal Lens)
- Multifocal Lens
- Toric Lens
- Accommodating Lens

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
  - January
  - February
  - March
  - April
  - May
  - June
  - July
  - August
  - September
  - October
  - November
  - December
  - <obtain> Year
- During
  - Winter of

- Spring of
- Summer of
- Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Cataract Surgery?]

- Yes

- Corneal Surgery

- Right Eye

- Descemet's Stripping Endothelial Keratoplasty (DSEK)
- Descemet Stripping Automated Endothelial Keratoplasty (DSAEK)
- Penetrating keratoplasty
- Lamellar keratoplasty

[Section Prompt: Date of Surgery]

- On

<obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

- Days ago
- Weeks ago
- Months ago
- Years ago

- Around

- January
- February
- March
- April
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- July
- August
- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

- Left Eye
  - Descemet's Stripping Endothelial Keratoplasty (DSEK)
  - Descemet Stripping Automated Endothelial Keratoplasty (DSAEK)
  - Penetrating keratoplasty
  - Lamellar keratoplasty

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
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    - Weeks ago
    - Months ago
    - Years ago
- Around

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- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Corneal Surgery?]

- Yes
- Refractive Surgery
  - Right Eye
    - LASIK (Laser-Assisted in Situ Keratomileusis)
    - PRK (Photorefractive Keratectomy)
    - LRI (Limbal Relaxing Incisions)

[Section Prompt: Date of Surgery]

- On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

- Days ago
- Weeks ago
- Months ago
- Years ago

Around

- January
- February
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- November
- December

<obtain> Year

During

- Winter of
- Spring of
- Summer of
- Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

Left Eye

- LASIK (Laser-Assisted in Situ Keratomileusis)
- PRK (Photorefractive Keratectomy)
- LRI (Limbal Relaxing Incisions)

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
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    - Months ago
    - Years ago
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  - October
  - November
  - December
  - <obtain> Year
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  - Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Refractive Surgery?]

Yes

YAG (Yttrium Aluminum Garnet) Laser Capsulotomy

Right Eye

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

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May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

Left Eye

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

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September

- October
- November
- December

<obtain> Year

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  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another YAG Laser Capsulotomy?]

- Yes
- Cyclodestruction
  - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
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    - Months ago
    - Years ago
- Around
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- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

- Left Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

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- Months ago
- Years ago

- Around

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- December

<obtain> Year

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  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Cyclodestruction?]

- Yes
- Goniotomy
  - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About

<obtain> Number of Increments Ago

- Days ago
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Months ago

Years ago

Around

January

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November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

- Weeks ago
- Months ago
- Years ago

Around

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- November
- December

<obtain> Year

During

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- Summer of
- Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Goniotomy?]

- Yes
- Laser Iridotomy
  - Right Eye

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Procedure]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
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  - August
  - September
  - October
  - November
  - December
  - <obtain> Year
- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of
  - <obtain> Year
- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Iridotomy?]

- Yes
- Laser Trabeculoplasty
  - Right Eye

[Section Prompt: Date of Procedure]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
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  - February
  - March
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  - August
  - September
  - October
  - November
  - December
  - <obtain> Year
- During
  - Winter of

- Spring of
- Summer of
- Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Procedure]

- On

<obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

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- Months ago
- Years ago

- Around

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- August
- September
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- November
- December

<obtain> Year

- During

- Winter of
- Spring of
- Summer of
- Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Laser Trabeculoplasty?]

- Yes
- Minimally Invasive Glaucoma Surgery
  - Right Eye
    - iStent
    - CyPass
    - Trabectome
    - TRAB360 Trabeculotomy
    - Xen Gel Stent

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
  - January
  - February
  - March
  - April

- May
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- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

- Left Eye

- iStent
- CyPass
- Trabectome
- TRAB360 Trabeculotomy
- Xen Gel Stent

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago

Years ago

Around

January

February

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December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Minimally Invasive Glaucoma Surgery?]

Yes

Trabeculectomy

Right Eye

Mitomycin C

Yes

No

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
  - January
  - February
  - March
  - April
  - May
  - June
  - July
  - August
  - September
  - October
  - November
  - December
  - <obtain> Year
- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of
  - <obtain> Year
- Unknown

Left Eye

Mitomycin C

Yes

No

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

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November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Trabeculectomy?]

Yes

Tube Shunt

Right Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

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August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Tube Shunt?]

Yes

Focal Macular Laser

Right Eye

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

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May

- June
- July
- August
- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Procedure]

- On
  - <obtain> Month/Day/Year

- About
  - <obtain> Number of Increments Ago

- Days ago
- Weeks ago
- Months ago
- Years ago

- Around
  - January
  - February
  - March
  - April

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- August
- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Focal Macular Laser?]

- Yes
- Intravitreal Injection
  - Right Eye

[Section Prompt: Agent]

[Section Selection Behavior: Select one. Required]

- Bevacizumab
- Ranibizumab
- Aflibercept
- Other

<Obtain> details

[Section Prompt: Date of Procedure]

- On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

Agent

- Bevacizumab
- Ranibizumab
- Aflibercept

<obtain> details

[Section Prompt: Date of Procedure]

- On

<obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

- Days ago
- Weeks ago
- Months ago
- Years ago

- Around

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- July
- August
- September
- October
- November
- December

<obtain> Year

- During

- Winter of
- Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Intravitreal Injection?]

Yes

Panretinal Photocoagulation

Right Eye

<obtain> Number of Laser Spots

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

<obtain> Number of Laser Spots

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

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August

- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Panretinal Photocoagulation?]

- Yes
- Posterior Vitrectomy
  - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
- Around
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- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year

- About
  - <obtain> Number of Increments Ago

- Days ago
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- Months ago
- Years ago

- Around
  - January
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- August
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- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Posterior Vitrectomy?]

- Yes
- Retinal Detachment Repair (Scleral Buckle)
  - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About

<obtain> Number of Increments Ago

- Days ago
- Weeks ago

Months ago

Years ago

Around

January

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November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

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- Years ago

Around

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- December

<obtain> Year

During

- Winter of
- Spring of
- Summer of
- Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Retinal Detachment Repair?]

Yes

Retinopexy

Right Eye

[Section Prompt: Date of Procedure]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Procedure]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
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- Around
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  - September
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  - November
  - December
  - <obtain> Year
- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of
  - <obtain> Year
- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Retinopexy?]

Yes

Blepharoplasty

Right Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

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September

October

November

December

<obtain> Year

During

Winter of

- Spring of
- Summer of
- Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Surgery]

- On

<obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

- Days ago
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- Months ago
- Years ago

- Around

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- November
- December

<obtain> Year

- During

- Winter of
- Spring of
- Summer of
- Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Blepharoplasty?]

- Yes

- Enucleation

- Right Eye

[Section Prompt: Date of Surgery]

- On

<obtain> Month/Day/Year

- About

<obtain> Number of Increments Ago

- Days ago
- Weeks ago
- Months ago
- Years ago

- Around

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- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year

- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago

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  - August

- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Enucleation?]

- Yes
- Ptosis Repair
  - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year
- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago
    - Months ago
    - Years ago
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- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

- Left Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year

- About
  - <obtain> Number of Increments Ago

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- Months ago
- Years ago

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  - January
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- September
- October
- November
- December

<obtain> Year

- During
  - Winter of
  - Spring of
  - Summer of
  - Autumn of

<obtain> Year

- Unknown

<obtain> Additional Details

[Section Prompt: Add Another Ptosis Repair?]

- Yes
  - Strabismus Surgery
    - Right Eye

[Section Prompt: Date of Surgery]

- On
  - <obtain> Month/Day/Year

- About
  - <obtain> Number of Increments Ago
    - Days ago
    - Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

- Weeks ago
- Months ago
- Years ago

Around

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

<obtain> Year

During

- Winter of
- Spring of
- Summer of
- Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Strabismus Surgery?]

Yes

Other Surgery/Procedure

<obtain> Description

Right Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

Left Eye

[Section Prompt: Date of Surgery]

On

<obtain> Month/Day/Year

About

<obtain> Number of Increments Ago

Days ago

Weeks ago

Months ago

Years ago

Around

January

February

March

April

May

June

July

August

September

October

November

December

<obtain> Year

During

Winter of

Spring of

Summer of

Autumn of

<obtain> Year

Unknown

<obtain> Additional Details

[Section Prompt: Add Another Other Surgery/Procedure?]

Yes

[End Past Ocular Procedures.]

## Section 2.6 - Family History of Ocular Conditions

[Begin Family History of Ocular Conditions.]

[Section Prompt: Family ocular history.]

Blindness

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

Corneal Dystrophy

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

Glaucoma

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt

- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

- Macular Degeneration

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle

- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

- Retinal Detachment

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

- Retinal Dystrophy

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father
- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

- Other

[Section Prompt: Relationship]

- Mother
- Maternal Grandmother
- Maternal Grandfather
- Maternal Half-Sister
- Maternal Half-Brother
- Maternal Aunt
- Maternal Uncle
- Father

- Paternal Grandmother
- Paternal Grandfather
- Paternal Half-Sister
- Paternal Half-Brother
- Paternal Aunt
- Paternal Uncle
- Sister
- Brother
- Daughter
- Son
- Other

<obtain> Detail

<obtain> Additional Details

[End Family History of Ocular Conditions.]

## Section 2.7 - Pertinent Systematic Medical History

[Begin Pertinent Systematic Medical History.]

[Technical Note: Automatically check conditions listed below if they are on the problem list within the electronic health record. Also allow user to select and add other problems from the problem list. Allow all fields to be updated. Note to implementation: The VA problem list is encoded in SNOMED CT.]

- Asthma
  - <obtain> Description
- Atrial Fibrillation
  - <obtain> Description
- Benign Prostatic Hypertrophy
  - <obtain> Description
- Carotid Artery Disease
  - <obtain> Description
- Coronary Artery Disease
  - <obtain> Description
- Chronic Obstructive Pulmonary Disease
  - <obtain> Description

- Congestive Heart Failure
  - <obtain> Description
- Connective Tissue Disease/Rheumatologic Conditions
  - <obtain> Description
- Diabetes Mellitus
  - <obtain> Description
- Other Endocrine Disorder
  - <obtain> Description
- HIV Infection
  - <obtain> Most Recent CD4 Count (cells/mm<sup>3</sup>)
  - <obtain> Most Recent Viral Load (copies/mL)
  - <obtain> Description
- Hypertension
  - <obtain> Description
- Hyperthyroidism
  - <obtain> Description
- Multiple Sclerosis
  - <obtain> Description
- Myocardial Infarction
  - <obtain> Description
- Renal Failure
  - <obtain> Description
- Sleep Apnea
  - <obtain> Description
- Stroke/Transient ischemic attack (TIA)
  - <obtain> Description
- Syphilis
  - <obtain> Description
- Traumatic Brain Injury
  - <obtain> Description

<obtain> Additional Details

[End Pertinent Systematic Medical History.]

## Section 2.8 - Pertinent Social History

[Begin Pertinent Social History.]

### Section 2.8.1. - Smoking and Substance Use

[Begin Smoking and Substance Use.]

[Section Prompt: Do you currently use tobacco?]

[Section Prompt: Tobacco includes cigarettes, pipe, cigars, and smokeless tobacco, such as dip, chew, snuff, and snus. Excludes e-cigarettes, ENDS (electronic nicotine delivery systems), and vaping devices.]

[Section Selection Behavior: Select only one. Required.]

- Every day
- Some days
- Not at all

[Technical Note: Those patients reporting use every day or some days will be considered a Current Tobacco User.]

[Technical Note: Display the following only if “Not at all” is selected in section “Do you currently use tobacco?”]

[Section Prompt: Have you ever used tobacco?]

[Section Selection Behavior: Select only one. Required.]

- Never user
- Former user

[Section Prompt: Substance Use History.]

[Section Selection Behavior: Select all that apply.]

- Alcohol
- Cocaine
- Opioid
- Marijuana
- Other
- Never user

<obtain> Description

[End Smoking and Substance Use.]

<obtain> Additional Pertinent Social History Information

[End Pertinent Social History.]

## Section 2.9 - Medications

[Begin Medications.]

<obtain> Eye Medication

[Technical Note: Auto populate Eye Medications from electronic record and include the end user option to update list.]

<obtain> Other Medications (Including Over-The-Counter Medications and Supplements)

[Technical Note: Auto populate Over-The-Counter Medications and Supplements from the electronic health record and include the end user option to update list.]

[End Medications.]

## Section 2.10 - Allergies

[Begin Allergies.]

[Section Prompt: Allergies to Eye Medications.]

<obtain> Allergies to Eye Medications

[Technical Note: Auto populate “Allergies to Eye Medications” and include option to update list.]

[Section Prompt: Other Allergies.]

<obtain> Other Allergies

[Technical Note: Auto populate “Other Allergies” and include option to update list.]

[End Allergies.]

## Section 2.11 - Ocular Exam

[Begin Ocular Exam.]

[Section Prompt: Ocular Exam.]

[Section Selection Behavior: One or more. Optional]

- Visual Acuity
  - Distance Vision
  - Near Vision
- Lensometry
- Refraction
  - Distance Visual Acuity with Refraction
  - Near Vision Acuity Refraction
- Intraocular Pressure Measurement
- External Eye Exam
- Silt Lamp
- Fundoscopic Exam

[Technical Note: Activate associated subsections selected in the “Ocular Exam” checkboxes.]

## Section 2.11.1. - Visual Acuity

[Begin Visual Acuity.]

[Technical Note: Provide link to Visual Acuity History including display of vision over time for returning patients.]

[End Visual Acuity.]

### Section 2.11.1.1. - Distance Vision

[Begin Distance Vision.]

[Section Prompt: Distance Vision]

[Technical Note: Snellen is default for the Visual Acuity Chart. The default chart distance is 10 feet. Both should be editable.]

[Section Prompt: Snellen is default for the Visual Acuity Chart.]

<Obtain> Visual Acuity Chart

[Section Prompt: Indicate below if you wish to select a different visual acuity chart.]

- Early Treatment Diabetic Retinopathy Study (ETDRS)
- Other

<obtain> Chart Name

<obtain> Chart Distance

[Section Prompt: Distance Units]

[Technical Note: Preselect “Feet” as Distance Units. Allow user to edit per preference.]

- Centimeters
- Inches
- Feet
- Meters

[Technical Note: Allow user to repeat Distance Vision section from here down as many times as needed by selecting Yes for New Distance Acuity Exam below.]

Testing Conditions

- Uncorrected
- Glasses
  - <obtain> Description
- Contact Lenses
  - <obtain> Description
- Best Corrected Vision
- Pinhole
- Potential Acuity Meter

- Glare
- Other

<obtain> Description

- Right Eye

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, decimal, and LogMar in parentheses.]

- 20/10 (6/3, 2.00, -0.30)
- 20/12.5 (6/3.8, 1.60, -0.20)
- 20/15 (6/4.5, 1.33, -0.12)
- 20/16 (6/4.8, 1.25, -0.10)
- 20/20 (6/6, 1.00, +0.00)
- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9.0, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)
- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)
- Count Fingers

<obtain> Distance

Distance Units

- Centimeters
- Inches

Feet

Meters

Hand Motion

<obtain> Distance

Distance Units

Centimeters

Inches

Feet

Meters

Light Perception without Projection

Light Perception with Projection

No Light Perception

Number of Missed Letters

[Technical Note: Do not display Number of Missed Letters and Number of Additional Letters Seen questions if Count Fingers, Hand Motion, Light Perception without Projection, Light Perception with Projection, or No Light Perception is selected for Visual Acuity Measurement.]

-1

-2

-3

Number of Additional Letters Seen

+1

+2

+3

Left Eye

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, decimal, and LogMar in parentheses.]

20/10 (6/3, 2.00, -0.30)

20/12.5 (6/3.8, 1.60, -0.20)

20/15 (6/4.5, 1.33, -0.12)

20/16 (6/4.8, 1.25, -0.10)

20/20 (6/6, 1.00, +0.00)

- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9.0, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)
- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)

- Count Fingers

<obtain> Distance

Distance Units

- Centimeters
- Inches
- Feet
- Meters

- Hand Motion

<obtain> Distance

Distance Units

- Centimeters
- Inches
- Feet
- Meters

- Light Perception without Projection

- Light Perception with Projection
- No Light Perception

Number of Missed Letters

[Technical Note: Do not display Number of Missed Letters and Number of Additional Letters Seen questions if Count Fingers, Hand Motion, Light Perception without Projection, Light Perception with Projection, or No Light Perception is selected for Visual Acuity Measurement.]

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

- Both Eyes

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, decimal, and LogMar in parentheses.]

- 20/10 (6/3, 2.00, -0.30)
- 20/12.5 (6/3.8, 1.60, -0.20)
- 20/15 (6/4.5, 1.33, -0.12)
- 20/16 (6/4.8, 1.25, -0.10)
- 20/20 (6/6, 1.00, +0.00)
- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9.0, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)

- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)
- Count Fingers

<obtain> Distance

Distance Units

- Centimeters
  - Inches
  - Feet
  - Meters
- Hand Motion

<obtain> Distance

Distance Units

- Centimeters
  - Inches
  - Feet
  - Meters
- Light Perception without Projection
- Light Perception with Projection
- No Light Perception

Number of Missed Letters

[Technical Note: Do not display Number of Missed Letters and Number of Additional Letters Seen questions if Count Fingers, Hand Motion, Light Perception without Projection, Light Perception with Projection, or No Light Perception is selected for Visual Acuity Measurement.]

- 1
- 2
- 3

Number of Additional Letters Seen

- +1

+2

+3

[End Distance Vision.]

### **Section 2.11.1.2 - Near Vision**

[Begin Near Vision.]

[Section Prompt: Near Vision]

[Technical Note: Snellen is default for the Visual Acuity Chart. The default chart distance is 16 inches. Both should be editable.]

[Section Prompt: Snellen is default for the Visual Acuity Chart.]

<Obtain> Visual Acuity Chart

[Section Prompt: Indicate below if you wish to select a different visual acuity chart.]

Jaeger

LogMAR

M Notation

Other

<obtain> Chart Name

[Technical Note: Auto populate Chart Distance as 16 and preselect “Inches” as Distance Units. Allow user to edit.]

<obtain> Chart Distance

[Section Prompt: Distance Units]

Centimeters

Inches

[Section Prompt: Allow user to repeat Near Vision section from here down as many times needed by selecting Yes for New Near Acuity Exam below.]

Testing Conditions

Uncorrected

Glasses

<obtain> Description

Contact Lenses

<obtain> Description

Other

<obtain> Description

Right Eye

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal and approximate Jaeger in parentheses.)

- 20/10 (16/8, 40/20, 0.20, 2.00, -)
- 20/12.5 (16/10, 40,25, 0.25, 1.60, -)
- 20/16 (16/12.8, 40/32, 0.32, 1.25, -)
- 20/20 (16/16, 40/40, 0.40, 1.00, 1)
- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)
- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)
- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

- Left Eye

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal and approximate Jaeger in parentheses.]

- 20/10 (16/8, 40/20, 0.20, 2.00, -)
- 20/12.5 (16/10, 40,25, 0.25, 1.60, -)
- 20/16 (16/12.8, 40/32, 0.32, 1.25, -)
- 20/20 (16/16, 40/40, 0.40, 1.00, 1)

- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)
- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)
- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

- Both Eyes

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal and approximate Jaeger in parentheses.]

- 20/10 (16/8, 40/20, 0.20, 2.00, -)
- 20/12.5 (16/10, 40/25, 0.25, 1.60, -)
- 20/16 (16/12.8, 40/32, 0.32, 1.25, -)
- 20/20 (16/16, 40/40, 0.40, 1.00, 1)
- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)
- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)

- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

[Section Prompt: New Near Acuity Exam.]

- Yes

<obtain> Visual Acuity Notes

[End Near Vision.]

[End Visual Acuity]

## Section 2.11.2. - Lensometry

[Begin Lensometry.]

[Technical Note: Provide link to most recent lensometry findings and allow importation to the electronic health record by user.]

[Link: Link to Import Most Recent Lensometry Findings.]

[Technical Note: Allow user to repeat Lensometry section from here down as many times as needed by selecting yes for New Lensometry Exam below.]

[Section Prompt: Lensometry Method.]

- Manual
- Automated

<obtain> Additional Details

[Section Prompt: Optical Correction Type.]

- Current Glasses
- Other

<obtain> Description

[Section Prompt: Right Eye.]

<obtain> Sphere (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)

<obtain> Add Power #1 (Diopters)

<obtain> Add Power #2 (Diopters)

<obtain> Prism Power (Diopters)

[Section Prompt: Prism Base.]

Up

Down

In

Out

[Section Prompt: Left Eye.]

<obtain> Sphere (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)

<obtain> Add Power #1 (Diopters)

<obtain> Add Power #2 (Diopters)

<obtain> Prism Power (Diopters)

[Section Prompt: Prism Base.]

Up

Down

In

Out

[Section Prompt: Interpupillary Distance

<obtain> Far Interpupillary Distance both eyes

<obtain> Near Interpupillary Distance both eyes

<obtain> Right eye Interpupillary Distance

<obtain> Left eye interpupillary Distance

[Section Prompt: New Lensometry Exam?]

Yes

No

<obtain> Lensometry Notes

[End Lensometry.]

### **Section 2.11.3. - Refraction**

[Begin Refraction.]

[Section Prompt: Refraction]

[Technical Note: Provide link to Refraction Exam History for returning patients.]

[Technical Note: Link to Refraction Exam History.]

[Technical Note: Allow user to repeat Refraction section from here down as many times as needed by selecting “yes” for New Refraction below.]

[Section Prompt: Refraction Testing Method and Conditions.]

Auto-refraction

Subjective refraction

Retinoscopy

Cycloplegic/Mydriatic

Cyclopentolate

Homatropine

Phenylephrine

Tropicamide

Other

<obtain> Cycloplegic Name

Over Refraction with Glasses

Over Refraction with Contacts

Trial Lens Refraction

Other

<obtain> Description

[Section Prompt: Right Eye]

<obtain> Sphere (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)

<obtain> Add Power Near (Diopters)

<obtain> Add Power Intermediate (Diopters)

<obtain> Prism Power (Diopters)

[Section Prompt: Prism Base.]

Up

Down

In

Out

[Section Prompt: Left Eye]

<obtain> Sphere (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)

<obtain> Add Power Near (Diopters)

<obtain> Add Power Intermediate (Diopters)

<obtain> Prism Power (Diopters)

[Section Prompt: Prism Base.]

Up

Down

In

Out

[End Refraction.]

### **Section 2.11.3.1 - Distance Visual Acuity with Refraction**

[Begin Distance Visual Acuity with Refraction.]

[Section Prompt: Distance Visual Acuity with Refraction]

[Technical Note: Snellen is default for the Visual Acuity Chart. The default chart distance is 10 feet. Both should be editable.]

[Section Prompt: Snellen is default for the Visual Acuity Chart.]

<Obtain> Visual Acuity Chart

[Section Prompt: Select below if you wish to select a different visual acuity chart.]

Early Treatment Diabetic Retinopathy Study (ETDRS)

Other

<obtain> Chart Name

<obtain> Chart Distance

[Section Prompt: Distance Units]

[Technical Note: Preselect “Feet” as Distance Units. Allow user to edit per preference.]

- Centimeters
- Inches
- Feet
- Meters

[Section Prompt: Right Eye.]

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, in decimal, and in LogMAR in parentheses.]

- 20/10 (6/3, 2.00, -0.30)
- 20/12.5 (6/3.8, 1.60, -0.20)
- 20/15 (6/4.5, 1.33, -0.12)
- 20/16 (6/4.8, 1.25, -0.10)
- 20/20 (6/6, 1.00, +0.00)
- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)
- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)

Number of Missed Letters

- 1

- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

[Section Prompt: Left Eye.]

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, in decimal, and in LogMAR in parentheses.]

- 20/10 (6/3, 2.00, -0.30)
- 20/12.5 (6/3.8, 1.60, -0.20)
- 20/15 (6/4.5, 1.33, -0.12)
- 20/16 (6/4.8, 1.25, -0.10)
- 20/20 (6/6, 1.00, +0.00)
- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)
- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)

Number of Missed Letters

- 1

- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

[Section Prompt: Both Eyes.]

[Technical Note: The values represent the visual acuity scale in feet, with the corresponding values for meters, in decimal, and in LogMAR in parentheses.]

- 20/10 (6/3, 2.00, -0.30)
- 20/12.5 (6/3.8, 1.60, -0.20)
- 20/15 (6/4.5, 1.33, -0.12)
- 20/16 (6/4.8, 1.25, -0.10)
- 20/20 (6/6, 1.00, +0.00)
- 20/25 (6/7.5, 0.80, +0.10)
- 20/30 (6/9, 0.67, +0.18)
- 20/32 (6/9.5, 0.63, +0.20)
- 20/40 (6/12, 0.50, +0.30)
- 20/50 (6/15, 0.40, +0.40)
- 20/63 (6/19, 0.32, +0.50)
- 20/70 (6/21, 0.29, +0.54)
- 20/80 (6/24, 0.25, +0.60)
- 20/100 (6/30, 0.20, +0.70)
- 20/125 (6/38, 0.16, +0.80)
- 20/160 (6/48, 0.125, +0.90)
- 20/200 (6/60, 0.10, +1.00)
- 20/250 (6/75, 0.08, +1.10)
- 20/320 (6/95, 0.06, +1.20)
- 20/400 (6/120, 0.05, +1.30)

Number of Missed Letters

- 1

-2

-3

Number of Additional Letters Seen

+1

+2

+3

[End Distance Visual Acuity with Refraction.]

### **Section 2.11.3.2. - Near Visual Acuity with Refraction**

[Begin Near Vision Acuity Refraction.]

[Section Prompt: Near Visual Acuity with Refraction]

[Technical Note: Snellen is default for the Visual Acuity Chart. The default chart distance is 16 inches. Both should be editable.]

[Section Prompt: Snellen is default for the Visual Acuity Chart.]

<Obtain> Visual Acuity Chart

[Section Prompt: Indicate below if you wish to select a different visual acuity chart.]

Jaeger

LogMAR

M Notation

Other

<obtain> Chart Name

[Technical Note: Auto populate Chart Distance as 16 and preselect “Inches” as Distance Units. Allow user to edit.]

<obtain> Chart Distance

[Section Prompt: Distance Units]

Centimeters

Inches

[Section Prompt: Right Eye.]

[Technical Note: The values represent the equivalent distance visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal, and LogMAR in parentheses.]

20/10 (16/8, 40/20, 0.20, 2.00, -)

20/12.5 (16/10, 40/25, 0.25, 1.60, -)

20/16 (16/12.8, 40/32, 0.32, 1.25, -)

20/20 (16/16, 40/40, 0.40, 1.00, 1)

- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)
- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)
- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/320, 3.2, 0.125, 10-15)
- 20/200 (16/160, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

[Section Prompt: Left Eye.]

[Technical Note: The values represent the equivalent distance visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal, and LogMAR in parentheses.]

- 20/10 (16/8, 40/20, 0.20, 2.00, -)
- 20/12.5 (16/10, 40/25, 0.25, 1.60, -)
- 20/16 (16/12.8, 40/32, 0.32, 1.25, -)
- 20/20 (16/16, 40/40, 0.40, 1.00, 1)
- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)

- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)
- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/320, 3.2, 0.125, 10-15)
- 20/200 (16/160, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1
- 2
- 3

Number of Additional Letters Seen

- +1
- +2
- +3

[Section Prompt: Both Eyes.]

[Technical Note: The values represent the equivalent distance visual acuity scale in feet, with the corresponding values in inches, centimeters, M notation, decimal, and LogMAR in parentheses.]

- 20/10 (16/8, 40/20, 0.20, 2.00, -)
- 20/12.5 (16/10, 40/25, 0.25, 1.60, -)
- 20/16 (16/12.8, 40/32, 0.32, 1.25, -)
- 20/20 (16/16, 40/40, 0.40, 1.00, 1)
- 20/25 (16/20, 40/50, 0.50, 0.80, 1)
- 20/30 (16/23.8, 40/60, 0.60, 0.67, 2)
- 20/32 (16/25.4, 40/63, 0.64, 0.63, 2)
- 20/40 (16/32, 40/80, 0.80, 0.50, 5)
- 20/50 (16/40, 40/100, 1.0, 0.40, 7)
- 20/63 (16/50, 40/125, 1.3, 0.32, 4-7)
- 20/80 (16/64, 40/160, 1.6, 0.25, 5-9)
- 20/100 (16/80, 40/200, 2.0, 0.20, 8-12)
- 20/125 (16/100, 40/250, 2.5, 0.16, 9-12)
- 20/160 (16/128, 40/320, 3.2, 0.125, 10-15)

- 20/200 (16/160, 40/400, 4.0, 0.10, 15-18)

Number of Missed Letters

- 1  
 -2  
 -3

Number of Additional Letters Seen

- +1  
 +2  
 +3

[Section Prompt: New Refraction?]

- Yes  
 No

<obtain> Refraction Testing Notes

[End Near Vision Acuity Refraction.]

## Section 2.11.4. - Intraocular Pressure Measurement

[Begin Intraocular Pressure Measurement.]

[Section Prompt: Intraocular Pressure]

[Technical Note: Provide link to Intraocular Pressure History and to display of intraocular pressure over time in relationship to target intraocular pressure for returning patients.]

[Technical Note: Link to Intraocular Pressure History]

[Technical Note: Allow user to repeat Intraocular Pressure Measurement section from here down as many times as needed by selecting Yes for Additional Intraocular Pressure Measurement below.]

<obtain> Right Eye (mm Hg)

<obtain> Date and Time Obtained

<obtain> Left Eye (mm Hg)

<obtain> Date and Time Obtained

[Technical Note: Allow user to set default Intraocular Pressure Measurement Method so that it is preselected whenever the form is used.]

[Section Prompt: Intraocular Pressure Measurement Method]

- Goldman Applanation Tonometer  
 Tono-Pen  
 Noncontact Tonometry  
 Icare Tonometer  
 Other

<obtain> Intraocular Pressure Measurement Method

[Section Prompt: Dilation Before Intraocular Pressure Measurement?]

- Yes
- No

[Section Prompt: Additional Intraocular Pressure Measurement?]

- Yes
- No

<obtain> Intraocular Pressure Measurement Notes

[End Intraocular Pressure Measurement.]

## Section 2.11.5. - External Eye Exam

[Begin External Eye Exam.]

[Section Prompt: External Eye Exam.]

- Unremarkable

[Section Prompt: Findings]

<obtain> Description both eyes

<obtain> Description right eye

<obtain> Description left eye

[Section Prompt: Pupil Exam.]

- Normal (Equal, Round, Reactive to Light, No Afferent Pupillary Defect)

<obtain> Description

- Relative Afferent Pupillary Defect (RAPD)

- Right Eye

<obtain> Description

- Left Eye

<obtain> Description

- Other Pupil Abnormality

<obtain> Description

[Section Prompt: Motility]

- Normal Extraocular Movements Both Eyes

[Section Prompt: Findings]

[Technical Note: Please do not display anything but “both eyes”, “right eye”, and “left eye” until one of these 3 is selected.]

Both Eyes:

- Esophoria  
<obtain> details
- Exophoria  
<obtain> details
- Esotropia  
<obtain> details
- Exotropia  
<obtain> details
- Hyperphoria  
<obtain> details
- Hypertropia  
<obtain> details
- Hypophoria  
<obtain> details
- Hypotropia  
<obtain> details
- Intermittent Esotropia  
<obtain> details
- Intermittent Esotropia, Mainly Latent  
<obtain> details
- Intermittent Esotropia, Mainly Manifest  
<obtain> details
- Intermittent Exotropia  
<obtain> details
- Intermittent Exotropia, Mainly Latent  
<obtain> details
- Intermittent Exotropia, Mainly Manifest  
<obtain> details

Right Eye

- Esophoria  
    <obtain> details
- Exophoria  
    <obtain> details
- Esotropia  
    <obtain> details
- Exotropia  
    <obtain> details
- Hyperphoria  
    <obtain> details
- Hypertropia  
    <obtain> details
- Hypophoria  
    <obtain> details
- Hypotropia  
    <obtain> details
- Intermittent Esotropia  
    <obtain> details
- Intermittent Esotropia, Mainly Latent  
    <obtain> details
- Intermittent Esotropia, Mainly Manifest  
    <obtain> details
- Intermittent Exotropia  
    <obtain> details
- Intermittent Exotropia, Mainly Latent  
    <obtain> details
- Intermittent Exotropia, Mainly Manifest  
    <obtain> details

Left Eye

- Esophoria  
    <obtain> details
- Exophoria  
    <obtain> details
- Esotropia  
    <obtain> details
- Exotropia  
    <obtain> details
- Hyperphoria  
    <obtain> details
- Hypertropia  
    <obtain> details
- Hypophoria  
    <obtain> details
- Hypotropia  
    <obtain> details
- Intermittent Esotropia  
    <obtain> details
- Intermittent Esotropia, Mainly Latent  
    <obtain> details
- Intermittent Esotropia, Mainly Manifest  
    <obtain> details
- Intermittent Exotropia  
    <obtain> details
- Intermittent Exotropia, Mainly Latent  
    <obtain> details
- Intermittent Exotropia, Mainly Manifest  
    <obtain> details

<obtain> Additional Details

[Technical Note: Link to Motility and Alignment Document Tool-See Appendix A.]

[End External Eye Exam.]

## Section 2.11.6. - Slit Lamp Exam

[Begin Slit Lamp.]

[Section Prompt: Slit Lamp Exam]

[Technical Note: Provide link to Slit Lamp Exam History for returning patients.]

[Clinical Comment: Future Implementation goal to provide a list of potential descriptors which can be linked to ICD codes.]

[Technical Note: Link to Slit Lamp Exam History.]

[Section Prompt: Dilation for Slit Lamp Examination?]

Yes

No

[Section Prompt: Right Eye.]

Lids and Lashes

Unremarkable

Findings

<obtain> Description

Conjunctiva

Unremarkable

Findings

<obtain> Description

Cornea

Unremarkable

Findings

<obtain> Description

Anterior Chamber

Unremarkable

Findings

<obtain> Description

Iris/Ciliary Body/Pupil

Unremarkable

Findings

<obtain> Description

Lens

Unremarkable

- Findings
- <obtain> Description

Anterior Vitreous

- Unremarkable
- Findings
- <obtain> Description

[Section Prompt: Left Eye.]

Lids and Lashes

- Unremarkable
- Findings
- <obtain> Description

Conjunctiva

- Unremarkable
- Findings
- <obtain> Description

Cornea

- Unremarkable
- Findings
- <obtain> Description

Anterior Chamber

- Unremarkable
- Findings
- <obtain> Description

Iris/Ciliary Body/Pupil

- Unremarkable
- Findings
- <obtain> Description

Lens

- Unremarkable
- Findings
- <obtain> Description

Anterior Vitreous

- Unremarkable
- Findings

<obtain> Description

<obtain> Additional Details

[Technical Note: If any findings are indicated, provide links to illustrations of external eyes, cornea, lens, anterior segment, macula, optic nerves, gonioscopy, and retinas for drawing findings.]

[Technical Note: Link to Printable Illustration of External Eyes]

[Technical Note: Link to Printable Illustration of Cornea]

[Technical Note: Link to Printable Illustration of Lens]

[Technical Note: Link to Printable Illustration of Anterior Segment]

[Technical Note: Link to Printable Illustration of Retinas]

[Technical Note: Link to Printable Illustration of Macula]

[Technical Note: Link to Printable Illustration of Optic Nerves]

[Technical Note: Link to Printable Illustration of Gonioscopy]

[End Slit Lamp.]

## Section 2.11.7. - Fundoscopic Exam

[Begin Fundoscopic Exam.]

[Technical Note: Provide link to Fundoscopic Exam History for returning patients.]

[Technical Note: Link to Fundoscopic Exam History]

[Section Prompt: Dilation for Fundoscopic Examination?]

- Yes
- No

[Section Prompt: Right Eye.]

[Section Prompt: Vitreous]

- Unremarkable
- Findings

<obtain> Description

[Section Prompt: Optic Nerve]

- Unremarkable
- Findings

<obtain> Description

<obtain> Cup-to-Disc Ratio

[Technical Note: Range 0.0 to 1.0 to 2 decimal points (probably a drop-down list).]

<obtain> Cup/Disc Details

[Section Prompt: Macula]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Vessels]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Periphery]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Left Eye.]

[Section Prompt: Vitreous]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Optic Nerve]

Unremarkable

Findings

<obtain> Description

<obtain> Cup-to-Disc Ratio

[Technical Note: Range 0.0 to 1.0 to 2 decimal points (probably a drop-down list).]

<obtain> Cup/Disc Details

[Section Prompt: Macula]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Vessels]

Unremarkable

Findings

<obtain> Description

[Section Prompt: Periphery]

- Unremarkable
- Findings

<obtain> Description

<obtain> Additional Details

[Technical Note: If any abnormal findings are indicated, provide link to illustration of retinas, macula, or optic nerve for drawing findings.]

[Technical Note: Link to Printable Illustration of Retinas]

[Technical Note: Link to Printable Illustration of Macula]

[Technical Note: Link to Printable Illustration of Optic Nerves]

[End Fundoscopic Exam.]

[End Ocular Exam.]

## Section 2.12 - Special Testing

[Begin Special Testing.]

[Technical Note: Dates should be captured automatically and presented to the user for all tests in the Special Testing section.]

[Section Prompt: Special Testing.]

[Section Selection Behavior: One or more. Optional]

- Color Vision Testing
- Stereo Vision Testing
- Amsler Grid Testing
- A-Scan Ultrasound
- Anterior Segment Optical Coherence Tomography
- B-Scan Ultrasound
- Confrontation Visual Field Testing
- Corneal Topography/Tomography
- Gonioscopy
- Intraocular Lens (IOL) Calculations
- Keratometry
- Optic Nerve Analysis
- Pachymetry
- Perimetry
- Retinal Imaging

[Technical Note: Activate subsections below when any of the “Special Testing” checkboxes are selected.]

## Section 2.12.1. - Color Vision Testing

[Begin Color Vision Testing.]

[Section Prompt: Color Vision Testing]

[Section Prompt: Color Vision Testing Method?]

- Ishihara
- Hardy-Rand-Rittler
- Farnsworth D-15
- Other

<obtain> Description

[Section Prompt: Right Eye Color Vision Findings?]

- Normal
- Abnormal

<obtain> Description

[Section Prompt: Left Eye Color Vision Findings?]

- Normal
- Abnormal

<obtain> Description

[End Color Vision Testing.]

## Section 2.12.2. - Stereo Vision Testing

[Begin Stereo Vision Testing.]

[Section Prompt: Stereo Vision Testing]

[Section Prompt: Stereo Vision Testing Method]

- Titmus Fly Stereo Test
  - Stereo Wings
    - Yes
    - No

<obtain> Number of Items Correctly Identified in Animal Test (of 3)

<obtain> Number of Items Correctly Identified in Circles Test (of 9)

- Randot Stereo Test
  - Gross Stereopsis Evaluation
    - 500 Seconds
    - 200 Seconds

- Absent
- Graded Circle Test
  - 400 Seconds
  - 200 Seconds
  - 140 Seconds
  - 100 Seconds
  - 70 Seconds
  - 50 Seconds
  - 40 Seconds
  - 30 Seconds
  - 25 Seconds
  - 20 Seconds
  - Absent
- Animal Test
  - 400 Seconds
  - 200 Seconds
  - 100 Seconds
  - Absent
- Other
  - <obtain> Test Name
  - <obtain> Test Results

<obtain> Stereo Vision Testing Notes

[End Stereo Vision Testing.]

### **Section 2.12.3. - Amsler Grid Testing**

[Begin Amsler Grid Testing.]

[Section Prompt: Amsler Grid Testing]

[Technical Note: Provide link to Amsler Grid History for returning patients.]

[Technical Note: Link to Prior Amsler Grid History]

[Technical Note: If Amsler Grid Testing is selected, provide the ability to draw on an electronic grid and a link to printable Amsler Grid images for illustrating findings or using as a patient handout for monitoring.]

[Technical Note: Link to Printable Amsler Grids.]

[Technical Note: Link to Electronic Amsler Grid.]

[Section Prompt: Right Eye Findings.]

Normal

Abnormal

<obtain> Description

[Section Prompt: Left Eye Findings]

Normal

Abnormal

<obtain> Description

[End Amsler Grid Testing.]

## Section 2.12.4. - A-Scan Ultrasound

[Begin A-Scan Ultrasound.]

[Section Prompt: A-Scan Ultrasound]

[Technical Note: Provide link to A-Scan Ultrasound History for returning patients.]

[Technical Note: Link to A-Scan Ultrasound History]

[Technical Note: Allow importation of A-Scan Ultrasound results.]

[Section Prompt: Right Eye Findings.]

[Section Prompt: Technique?]

Contact

Immersion

<obtain> Axial Length (Millimeters)

<obtain> Anterior Chamber Depth (Millimeters)

<obtain> Lens Thickness (Millimeters)

<obtain> Vitreous Depth (Millimeters)

[Section Prompt: Left Eye Findings.]

[Section Prompt: Technique?]

Contact

Immersion

<obtain> Axial Length (Millimeters)

<obtain> Anterior Chamber Depth (Millimeters)

<obtain> Lens Thickness (Millimeters)

<obtain> Vitreous Depth (Millimeters)

<obtain> A-Scan Ultrasound Notes

[End A-Scan Ultrasound.]

## Section 2.12.5. - Optical Biometry

[Begin Optical Biometry.]

[Section Prompt: Optical Biometry]

[Technical Note: Provide link to Optical Biometry History for returning patients.]

[Technical Note: Link to Optical Biometry History.]

[Technical Note: Allow importation of Optical Biometry results.]

[Section Prompt: Right Eye Findings.]

<obtain> Axial Length (Millimeters)

<obtain> Anterior Chamber Depth (Millimeters)

<obtain> Keratometric Value Median (diopters)

<obtain> Keratometric Value Mean +/- SD (diopters)

[Section Prompt: Left Eye Findings.]

<obtain> Axial Length (Millimeters)

<obtain> Anterior Chamber Depth (Millimeters)

<obtain> Keratometric Value Median (diopters)

<obtain> Keratometric Value Mean +/- SD (diopters)

<obtain> Optical Biometry Notes

[End Optical Biometry.]

## Section 2.12.6. - Anterior Segment Optical Coherence Tomography (OCT)

[Begin Anterior Segment Optical Coherence Tomography.]

[Section Prompt: Anterior Segment OCT]

[Technical Note: Provide link to Anterior Segment Optical Coherence Tomography History for returning patients.]

[Technical Note: Link to Anterior Segment Optical Coherence Tomography History]

[Technical Note: Allow importation of Anterior Segment Optical Coherence Tomography results.]

[Section Prompt: Right Eye Findings.]

<obtain> Anterior Chamber Depth (Millimeters)

[Section Prompt: Left Eye Findings.]

<obtain> Anterior Chamber Depth (Millimeters)

<obtain> Anterior Segment Optical Coherence Tomography Notes

[End Anterior Segment Optical Coherence Tomography.]

## Section 2.12.7. - B-Scan Ultrasound

[Begin B-Scan Ultrasound.]

[Section Prompt: B-Scan Ultrasound]

[Technical Note: Provide link to B-Scan Ultrasound History for returning patients.]

[Technical Note: Link to B-Scan Ultrasound History]

<obtain> Right Eye Findings

<obtain> Left Eye Findings

[Allow importation of B-Scan Ultrasound images.]

<obtain> B-Scan Ultrasound Notes

[End B-Scan Ultrasound.]

## **Section 2.12.8. - Confrontation Visual Field Testing**

[Begin Confrontation Visual Field Testing.]

[Section Prompt: Confrontation Visual Field]

[Technical Note: Provide link to Visual Field Testing History for returning patients.]

[Technical Note: Link to Visual Field Testing History]

[Section Prompt: Right Eye]

Full to Finger Counting

Other

<obtain> Description

[Section Prompt: Left Eye]

Full to Finger Counting

Other

<obtain> Description

[Technical Note: If Other is selected for either side, provide link to illustration for drawing visual field findings; allow importation of drawings. If possible, provide links to electronic illustrations upon which the user can draw findings.]

[Technical Note: Link to Electronic Visual Field Illustrations]

[Technical Note: Link to Upload Drawings]

[End Confrontation Visual Field Testing.]

## **Section 2.12.9. - Corneal Topography/Tomography**

[Begin Corneal Topography/Tomography.]

[Technical Note: Provide link to Corneal Topography/Tomography History for returning patients.]

[Technical Note: Link to Corneal Topography/Tomography History]

<obtain> Topography/Tomography Device

[Technical Note: Allow user to set default Topography/Tomography Device so that the field can be prefilled. Allow editing of the prefilled field.]

<obtain> Right Eye Findings

<obtain> Left Eye Findings

[Technical Note: Allow user to import images and reports from corneal topography/tomography devices.]

[Technical Note: Link to Import Results from Device]

<obtain> Corneal Topography/Tomography Notes

[End Corneal Topography/Tomography.]

## **Section 2.12.10. - Gonioscopy**

[Begin Gonioscopy.]

[Technical Note: Provide link to Gonioscopy History for returning patients.]

[Technical Note: Link to Gonioscopy History]

[Section Prompt: Gonioscopy Lens.]

- Zeiss
- Goldmann
- Sussman
- Posner
- Other

<obtain> Description

[Technical Note: Allow user to import Gonioscopy drawings.]

[Technical Note: Provide the ability to draw on an electronic illustration of gonioscopy and a link to printable illustration of Gonioscopy for illustrating findings or using as a patient handout for monitoring.]

[Technical Note: Link to Printable Illustration of Gonioscopy]

[Technical Note: Link to Electronic Illustration of Gonioscopy]

[Technical Note: Link to Import Gonioscopy Drawings.]

[Section Prompt: Right Eye]

[Section Prompt: General Findings.]

- Open

<obtain> Description

- Occludable

<obtain> Description

- Recessed

<obtain> Description

- Closed

<obtain> Description

<obtain> Additional Findings

[Section Prompt: Posterior Structure Visible.]

- Schwalbe Line
- Trabecular Meshwork

- Scleral Spur
- Ciliary Body

[Section Prompt: Pigment Rating.]

- +1
- +2
- +3
- +4

[Section Prompt: Classification.]

[Technical Note: Please provide a link in the bibliography to American Academy of Ophthalmology guidance for these classification systems: <http://eyewiki.aaopt.org/Gonioscopy>.]

[Technical Note: Allow user to set a default classification scheme.]

- Schele Grade

## Scheie

The Scheie system is based upon visibility of the anatomical structures of the angle. They are graded Wide through IV, with Wide being the most open. See Table 1 for an in depth description of the Scheie system.

Table 1. The Scheie Classification System

Grade	Visibility	Interpretation
Wide	Wide	Open, all structures visible
I	Slightly Narrowed	Ciliary body visible, but recess obscured by the last roll of the iris
II	Apex not visible	Ciliary body not visible
III	Posterior half of trabecular meshwork not visible	Ciliary body, scleral spur, and posterior half of the trabecular meshwork not visible
IV	None of the angle structures visible	Ciliary body, scleral spur, and trabecular meshwork not visible

- Grade Wide; Visibility=Wide; Interpretation=Open, all structures visible
- Grade I; Visibility=Slightly Narrowed; Interpretation=Ciliary body visible, but recess obscured by the last roll of the iris
- Grade II; Visibility=Apex not visible; Interpretation=Ciliary body not visible
- Grade III; Visibility=Posterior half of trabecular meshwork not visible; Interpretation=Ciliary body, scleral spur, and posterior half of the trabecular meshwork not visible
- Grade IV; Visibility=None of the angle structures visible; Interpretation=Ciliary body, scleral spur, and trabecular meshwork not visible

- Shaffer Grade

## Shaffer

The Shaffer system is based on angularity. It also uses a number system, but is in reverse of the Scheie system. For example, a Grade 4 angle in the Shaffer system is wide open, while a Grade IV in the Scheie system is anatomically closed with no structures visible! See Table 2 for detailed description of the the Shaffer classification system.

Table 2. The Shaffer Classification System

Angular Grade	Width (in degrees)	Grade	Clinical Interpretation
Wide Open Angle	45-35	4	Angle closure impossible in both Grades 3 and 4
	35-20	3	
Narrow Angle	20	2	Angle closure possible
Narrow Angle, extreme	10 or less	1	Angle closure probable, eventually
Narrow Angle, slit	Critically narrowed angle, quite possibly against the trabecular meshwork beyond Schwalbe's line	-	-
Narrow angle, partial or complete closure	0	0	Angle closed in part or all of circumference

- Grade 4-Wide Open Angle; Width=45-35 degrees
- Grade 3-Wide Open Angle; Width=35-20 degrees
- Grade 2-Narrow Angle; Width=20 degrees
- Grade 1- Narrow Angle, extreme; Width=10 degrees or less
- Narrow Angle, slit; Critically narrowed angle, quite possibly against the trabecular meshwork beyond Schwalbe's line.
- Grade 0-Narrow Angle, partial or complete closure

- Spaeth System

## Spaeth

The Spaeth system is much more complex and describes each detail of the anatomic angle. This system describes the iris insertion, angularity, configuration, and pigmentation of the posterior trabecular meshwork. We will illustrate this detailed description below.

### Iris Insertion

Designated by letter A-E. A is anterior to Schwalbe's line, B is between Schwalbe's and the scleral spur, C is at the scleral spur, D is deep, E is extremely deep.

### Iris Angularity

The angle of the iris is defined as the angle between two lines. The first line is parallel to the trabecular meshwork and the second a tangent to the anterior iris surface approximately 1/3 of the distance from the most peripheral portion of the iris. It is usually noted between 10 and 40 degrees.

### Iris Configuration

This is named for the configuration or shape of the iris as it runs from the papillary margin to the insertion. S is for steep, B for bowing anteriorly, P for plateau, R or F for regular or flat, respectively, and C for concave posteriorly.

### Pigmentation

This is graded on a 0 to 4 scale noting the amount of pigmentation in the posterior trabecular meshwork.

The Spaeth system also takes into account dynamic or compressive gonioscopy. If a letter is in parentheses, this means it is the originally viewed insertion prior to compression. It is then followed by a letter without parentheses, which denotes the insertion after compression. An example is (B)D30P1. This is an angle that is thought to have an iris insertion between Schwalbe's line and the scleral spur. After compression, it is noted that the insertion is deep, with an angle of 30 degrees and a plateau configuration with grade 1 pigmentation of the trabecular meshwork.

### Iris Insertion

- A (Insertion Anterior to Schwalbe Line)
- B (Insertion between Schwalbe's Line and Scleral Spur)
- C (Insertion at Scleral Spur)

- D (Deep Insertion)
  - E (Extremely Deep Insertion)
- <obtain> Iris Angularity (Degrees)

Iris Angularity (10-40 Degrees)

<obtain> Degrees

Iris Configuration

- S (Steep)
  - B (Anterior Bowing)
  - P (Plateau)
  - R (Regular)
  - F (Flat)
  - C (Posteriorly Concave)
- <obtain> Pigmentation Grade (0 to 4)

Pigmentation

<obtain> Pigmentation Grade

[Technical Note: Scale choices 0, 1+, 2+, 3+, 4+]

- Left Eye

[Section Prompt: Right Eye General Findings.]

- Open
- <obtain> Description

- Occludable
- <obtain> Description

- Recessed
- <obtain> Description

- Closed
- <obtain> Description

<obtain> Additional Findings

[Section Prompt: Posterior Structure.]

- Schwalbe Line
- Trabecular Meshwork
- Scleral Spur
- Ciliary Body

[Section Prompt: Pigment Rating.]

- +1
- +2
- +3
- +4

[Section Prompt: Classification.]

[Technical Note: Allow user to set a default classification scheme.]

- Scheie Grade
  - Wide (Open Angle; All Structures Visible)
  - I (Slightly Narrowed Angle; Ciliary Body Visible, Recess Obscured)
  - II (Angle Apex Not Visible; Ciliary Body Not Visible)
  - III (Ciliary Body, Scleral Spur, and Posterior Aspect of Trabecular Meshwork Not Visible)
  - IV (No Visible Angle Structures)
- Shaffer Grade
  - 4 (Wide, Open Angle of 35 to 40 Degrees)
  - 3 (Wide, Open Angle of 20 to 35 Degrees)
  - 2 (Narrowed Angle of 20 Degrees)
  - 1 (Extremely Narrowed Angle of 10 Degrees or Less)
  - 0 (Critically Narrowed Angle with Closure in All or Part of Circumference)
- Spaeth System
  - Iris Insertion
    - A (Insertion Anterior to Schwalbe Line)
    - B (Insertion between Schwalbe Line and Scleral Spur)
    - C (Insertion at Scleral Spur)

- D (Deep Insertion)
  - E (Extremely Deep Insertion)
- <obtain> Iris Angularity (Degrees)

Iris Angularity (10-40 Degrees)

<obtain> Degrees

Iris Configuration

- S (Steep)
- B (Anterior Bowing)
- P (Plateau)
- F (Flat)
- C (Posteriorly Concave)

<obtain> Pigmentation Grade (0 to 4)

Pigmentation

<obtain> Pigmentation Grade

[Technical Note: Scale choices 0, 1+, 2+, 3+, 4+]

[Technical Note: Allow user to repeat Gonioscopy Section by selecting “Yes” for Additional Gonioscopy.]

[Section Prompt: Additional Gonioscopy?]

- Yes
- No

<obtain> Gonioscopy Notes

[End Gonioscopy.]

## **Section 2.12.11. - Intraocular Lens (IOL) Calculations**

[Begin IOL Calculations.]

[Section Prompt: IOL Calculation method]

- Holladay I
- Holladay II
- Hoffer Q
- Haigis

- SRK/T
- Olsen
- Barrett II
- Other

<obtain> Description

[Section Prompt: Right Eye Findings.]

[Technical Note: This needs to be presented as a table for each lens model, with a range of lens powers and associated predicted postoperative refractive error for each lens power.]

[Technical Notes: Users need to be able to define multiple preferred default settings for IOL calculation method and lens model].

<obtain>Lens Model

<obtain>Lens Power

<obtain> Predicted Postoperative Refractive Error

[Section Prompt: Left Eye Findings.]

<obtain>Lens Model

<obtain>Lens Power

<obtain> Predicted Postoperative Refractive Error

[End IOL Calculations.]

## Section 2.12.12. - Keratometry

[Begin Keratometry.]

[Technical Note: Provide link to Keratometry History for returning patients.]

[Technical Note: Link to Keratometry History]

[Technical Note: Allow user to import images and reports from Keratometry devices.]

[Technical Note: Allow user to repeat Keratometry section from here down as many times as needed by selecting Yes for Additional Keratometry below.]

[Section Prompt: Keratometry]

[Section Prompt: Right Eye]

<obtain> Keratometry 1 (Diopters)

<obtain> Keratometry 1 (Millimeters)

<obtain> Keratometry 2 (Diopters)

<obtain> Keratometry 2 (Millimeters)

<obtain> Axis (Degrees)

[Section Prompt: Left Eye]

<obtain> Keratometry 1 (Diopters)

<obtain> Keratometry 1 (Millimeters)

<obtain> Keratometry 2 (Diopters)

<obtain> Keratometry 2 (Millimeters)

[Allow user to repeat Keratometry Section by selecting Yes for Additional Keratometry.]

[Section Prompt: Additional Keratometry?]

Yes

<obtain> Keratometry Notes

[End Keratometry.]

## Section 2.12.13. - Optic Nerve Analysis

[Begin Optic Nerve Analysis.]

[Technical Note: Provide link to Optic Nerve Analysis History for returning patients.]

[Technical Note: Link to Optic Nerve Analysis History]

[Technical Note: Allow importation of results from Optic Nerve Analysis.]

[Section Prompt: Type of Optic Nerve Analysis]

Heidelberg Retinal Tomography

GDx Nerve Fiber Analysis

Optical Coherence Tomography

[Section Prompt: Right Eye.]

[Section Prompt: Retinal Nerve Fiber Layer Thickness

<obtain> Inferior (Microns)

<obtain> Superior (Microns)

<obtain> Nasal (Microns)

<obtain> Temporal (Microns)

<obtain> Average Peripapillary Thickness (Microns)

<obtain> Additional Details

[Section Prompt: Left Eye.]

[Section Prompt: Retinal Nerve Fiber Layer Thickness

<obtain> Inferior (Microns)

<obtain> Superior (Microns)

<obtain> Nasal (Microns)

<obtain> Temporal (Microns)

<obtain> Average Peripapillary Thickness (Microns)

<obtain> Additional Details

<obtain> Retinal Nerve Fiber Layer Symmetry

<obtain> Optic Nerve Analysis Notes

[End Optic Nerve Analysis.]

## Section 2.12.14. - Pachymetry

[Begin Pachymetry.]

[Technical Note: Provide link to Pachymetry History for returning patients.]

[Technical Note: Link to Pachymetry History]

[Section Prompt: Pachymetry Findings.]

<obtain> Right Corneal Thickness (Micrometers)

<obtain> Left Corneal Thickness (Micrometers)

<obtain> Pachymetry Notes

[End Pachymetry.]

## Section 2.12.15. - Perimetry

[Begin Perimetry.]

[Technical Note: Provide link to Perimetry History for returning patients.]

[Technical Note: Link to Perimetry History]

[Section Prompt: Perimetry]

[Section Prompt: Right Eye.]

[Section Prompt: Machine Used.]

Humphrey

Octopus

Goldmann

Other

<obtain> Description

[Section Prompt: Testing Strategy.]

10-2

24-2

30-2

SITA Standard

SITA Fast

Other

<obtain> Description

[Section Prompt: Reliability.]

Good

Fair

Poor

<obtain> Description

<obtain> Pupil Size (Millimeters)

[Section Prompt: Findings.]

- Unremarkable
- Abnormal Findings

<obtain> Description

[Technical Note: Allow importation of images.]

[Technical Note: Link to Import Images.]

[Section Prompt: Left Eye.]

[Section Prompt: Machine Used.]

- Humphrey
- Octopus
- Goldmann
- Other

<obtain> Description

[Section Prompt: Testing Strategy.]

- 10-2
- 24-2
- 30-2
- SITA Standard
- SITA Fast
- Other

<obtain> Description

[Section Prompt: Reliability.]

- Good
- Fair
- Poor

<obtain> Description

<obtain> Pupil Size (Millimeters)

[Section Prompt: Findings.]

- Unremarkable
- Abnormal Findings

<obtain> Description

[Technical Note: Allow importation of images.]

[Technical Note: Link to Import Images.]

[End Perimetry.]

## **Section 2.12.16. - Retinal Imaging**

[Begin Retinal Imaging.]

[Technical Note: Provide link to Retinal Imaging History for returning patients.]

[Technical Note: If Retinal Imaging selected, allow importation of images and results.]

<obtain> Device Name

[Technical Note: Allow user to set a default device name. Prefill “Device Name” with default name and allow edits.]

[Section Prompt: Type of Imaging.]

- Retinal Photography
- Fluorescein Angiography
- Tomography
- Other Retinal Imaging

<obtain> Additional Details

[End Retinal Imaging.]

[End Special Testing.]

## **Section 2.13 - Procedure Notes**

[Begin Procedure Notes.]

[Section Prompt: Procedures]

<obtain> Name of Procedure

<obtain> Procedure CPT Code

<obtain> Diagnosis

- Right Eye
- Left Eye
- Both Eyes

[Section Prompt: Document the “Time-Out” process per policy.]

- Correct Patient (Two Patient Identifiers)
- Correct Procedure
- Correct Site
- Procedure Confirmed with Patient
- Site Marked

<obtain> Pretreatment

[Section Prompt: Injection(s)]

<obtain> Medication

<obtain> Lot Number

<obtain> Inventory Number

<obtain> Dosage

[Section Prompt: Laser(s).]

<obtain> Laser Type

<obtain> Spot Size

<obtain> Power

<obtain> Duration [Technical note: This is duration for Each Spot]

<obtain> Number of Spots

<obtain> Procedure Notes

[End Procedure Notes.]

## **Section 2.14 - Assessment and Plan**

[Begin Assessment and Plan.]

### **Section 2.14.1. - Assessment**

[Begin Assessment.]

[Technical Note: For returning patients, propose assessment entries from the most recent Eye Care KNART Assessment section for selection. For all users, propose items for confirmation based on entries in the Past Ocular History and findings from the Ocular Exam and Special Testing sections of this documentation template. Allow user to edit and comment on items. Also allow user to insert as many free text boxes as needed. For patients with glaucoma, include editable entries for target intraocular pressures as seen in the Past Ocular History.]

[Technical Note: Each entry in the assessment pulls up the plan so that the user can document the part of the plan that is relevant to that entry.]

[End Assessment.]

### **Section 2.14.2. - Plan**

[Begin Plan.]

[Clinical Comment: Future development of the Eye Care Order Set KNART will result in the order set being activated from the plan section of the documentation template.]

#### **Section 2.14.2.1. - Vision Correction Prescription Glasses**

[Begin Vision Correction Prescription Glasses.]

[Technical Note: Populate fields with results from Refraction section of Ocular Exam above. Allow user to edit fields.]

[Section Prompt: Prescription for glasses- Right Eye.]

<obtain> Sphere (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)  
<obtain> Add Power # 1 (Diopters)  
<obtain> Add Power # 2 (Diopters)  
<obtain> Prism Power (Diopters)

Prism Base

- Up
- Down
- In
- Out

[Section Prompt: Prescription for glasses- Left Eye

<obtain> Sphere (Diopters)  
<obtain> Cylinder (Diopters)  
<obtain> Axis (Degrees)  
<obtain> Add Power # 1 (Diopters)  
<obtain> Add Power # 2 (Diopters)  
<obtain> Prism Power (Diopters)

Prism Base

- Up
- Down
- In
- Out

<obtain> Additional Information

[Technical Note: Make Glasses Prescription section exportable.]

[End Vision Correction Prescription Glasses.]

## **Section 2.14.2.2. - Vision Correction Prescription – Contact Lenses**

[Begin Vision Correction Prescription – Contact Lenses.]

[Section Prompt: Contact lenses- Right Eye.]

<obtain> Power (Diopters)  
<obtain> Base Curve (Millimeters)  
<obtain> Diameter (Millimeters)  
<obtain> Brand  
<obtain> Color  
<obtain> Add Power (Diopters)  
<obtain> Cylinder (Diopters)  
<obtain> Axis (Degrees)

[Section Prompt: Contact lenses- Left Eye.]

<obtain> Power (Diopters)

<obtain> Base Curve (Millimeters)

<obtain> Diameter (Millimeters)

<obtain> Brand

<obtain> Color

<obtain> Add Power (Diopters)

<obtain> Cylinder (Diopters)

<obtain> Axis (Degrees)

<obtain> Additional Information

[End Vision Correction Prescription – Contact Lenses.]

### **Section 2.14.2.3. - Eye Prosthetic Devices**

[Begin Eye Prosthetic Devices.]

[Section Prompt: Eye Prosthetic Devices]

<obtain> Description

[End Eye Prosthetic Devices.]

### **Section 2.14.2.4. - Laboratory Tests**

[Begin Laboratory Tests.]

- Complete Blood Count
- Complete Blood Count with Differential
- Basic Metabolic Panel
- Chem-12
- Blood Urea Nitrogen
- Creatinine
- Fasting Glucose
- Hemoglobin A1c
- Fluorescent Treponemal Antibody Absorption
- Angiotensin Converting Enzyme Level
- Antinuclear Antibody
- HLA-B27 Typing
- Lyme Serologic Testing
- Lipid Panel

- Erythrocyte Sedimentation Rate
- C-Reactive Protein
- Vitamin B12
- Folate
- Thiamine
- Other

<obtain> Other Lab Tests

[End Laboratory Tests.]

### **Section 2.14.2.5. - Imaging Studies**

[Begin Imaging Studies.]

- X-Ray Chest Posterior-Anterior and Lateral
- CT Head with contrast
- CT Orbits with Contrast

[Technical Note: Present the following warning if CT Head or Orbits with Contrast is selected for a patient with a documented contrast allergy: “Patient has a documented contrast allergy.” If available, provide link to an order set KNART for contrast allergy.]

- CT Head without Contrast
- CT Orbits without Contrast
- MRI Head with Contrast
- MRI Orbits with Contrast

[Technical Note: Present the following warning if MRI Head or Orbits with Contrast is selected for a patient with a documented contrast allergy: “Patient has a documented contrast allergy.” If available, provide link to an order set KNART for contrast allergy.]

- MRI Head without Contrast
- MRI Orbits without Contrast
- Carotid Doppler
- Sleep Study
- Other

<obtain> Other Imaging Studies

[End Imaging Studies.]

### **Section 2.14.2.6. - Eye Clinic Ancillary Study and Procedure Orders**

[Begin Eye Clinic Ancillary Study and Procedure Orders.]

- Amsler Grid

- Refraction
- Keratometry
- Scanning Laser Polarimetry
- Electrooculography
- Refractive Surgery Measurements and Calculations
- Electroretinography
- Pachymetry
- Intraocular Pressure Measurement
- Intraocular Lens Calculations
- Optical Coherence Tomography
  - Angiography
  - Angle
  - Anterior Segment
  - Cornea
  - Ganglion Cell Analysis
  - Macular Change Analysis
  - High Definition
  - Macular Cube
  - Macular Thickness Analysis
  - Optic Nerve and Retinal Nerve Fiber Layer Analysis
  - Progression Analysis
  - Single Eye Summary
- A Scan
- B Scan
- Confocal Microscopy
- Corneal Topography
- External Eye Photography
  - <obtain> Description
- Slit Lamp Photography
  - <obtain> Description

- Fundus Photography

<obtain> Description

- Fluorescein Angiography
- ICG - Indocyanine Green Angiography
- Other

<obtain> Description

[End Eye Clinic Ancillary Study and Procedure Orders.]

### **Section 2.14.2.7. - Medications**

[Begin Medications.]

[Section Prompt: Current Medications.]

<obtain> Current Medication list.]

[Section Prompt: Current Eye Medications]

<obtain> Current Eye Medication list.]

[Technical Note: Dynamically provide a link to the appropriate formulary based on the individual clinical site.]

[Technical Note: The Medications text field should behave as a search field in which suggestions are made based on the appropriate site-specific formulary.]

[Technical Note: Future Implementation KNART that links directly to pharmacy EHR system for all medications and then this connection will print selected medications back into the Eye Care plan.]

[Technical Note: The user should have the ability to either print or electronically transmit a prescription, either on-formulary or off-formulary.]

[Selection Behavior: One required for each medication selected.]

- Continue
- Discontinue
- Increase
- Decrease
- Add

[Section Prompt: Medication.]

- Acetazolamide

<obtain> Detail

- Acyclovir

<obtain> Detail

- Aflibercept (Restricted to Ophthalmology)

- Both Eyes

- Right eye

- Left Eye
  - <obtain> Detail
- Artificial Tears
  - 1 drop every 2 hours as needed
    - <obtain> Detail
- Atropine Sulfate 1% Ophthalmic Solution
  - <obtain> Detail
- Bacitracin/Polymyxin Ophthalmic Ointment
  - 3.5 gram
    - <obtain> Detail
- Betaxolol Hydrochloride 0.25% Ophthalmic Suspension (Restricted to Eye Clinic)
  - <text> Detail
- Bevacizumab Intravitreal Injection (Restricted to Ophthalmology)
  - Right eye
  - Left eye
  - Both eyes
    - <obtain> Detail
- Brimonidine 0.2% Ophthalmic Solution
  - <obtain> Detail
- Brimonidine 0.2%/Brinzolamide Ophthalmic Solution
  - <obtain> Detail
- Carboxymethylcellulose 1% Ophthalmic Gel
  - <obtain> Detail
- Carboxymethylcellulose 0.5% Ophthalmic Solution
  - <obtain> Detail
- Cromolyn 4% Ophthalmic Solution
  - <obtain> Detail
- Cyclosporine 0.05% Ophthalmic Emulsion (Restricted to Eye Clinic)
  - <obtain> Detail
- Diclofenac Sodium 0.1% Ophthalmic Solution (Restricted to Ophthalmology)

<obtain> Detail

- Dorzolamide Hydrochloride 2% Ophthalmic Solution (Restricted to Eye Clinic)

<obtain> Detail

- Dorzolamide Hydrochloride 2%/Timolol 0.5% Ophthalmic Solution (Restricted to Eye Clinic)

<obtain> Detail

- Doxycycline

<obtain> Detail

- Erythromycin 0.5% Ophthalmic Ointment

<obtain> Detail

- Fluorometholone 0.1% Ophthalmic Suspension (Restricted to Ophthalmology)

<obtain> Detail

- Ketorolac 0.025% Ophthalmic

<obtain> Detail

- Ketorolac Tromethamine 0.5% Ophthalmic Solution

<obtain> Detail

- Latanoprost 0.005% Ophthalmic Solution

<obtain> Detail

- Levobunolol Hydrochloride 0.25% Ophthalmic Solution (Restricted to Eye Clinic)

<obtain> Detail

- Lubricating Ophthalmic Ointment

<obtain> Detail

- Methazolamide

<obtain> Detail

- Mitomycin (Restricted to Ophthalmology)

<obtain> Detail

- Multivitamin/Ophthalmologic AREDS2/Lutein/Zeaxanthin

- 2 times daily

- Other

<obtain> Detail

- Naphazoline/Pheniramine Ophthalmic Solution

<obtain> Detail

- Ofloxacin 0.3% Ophthalmic Suspension (Restricted to Ophthalmology)

<obtain> Other

- Pilocarpine Hydrochloride 1% Ophthalmic Solution

<obtain> Detail

- Pilocarpine Hydrochloride 2% Ophthalmic Solution

<obtain> Detail

- Prednisolone Acetate 1% Ophthalmic Suspension (Restricted to Ophthalmology)

<obtain> Detail

- Ranibizumab Injection (Restricted to Ophthalmology)

- Both eyes

- Right eye

- Left eye

<obtain> Detail

- Sodium Chloride Ophthalmic Solution

<obtain> Detail

- Timolol Maleate 0.25% Ophthalmic Solution

<obtain> Detail

- Timolol Maleate 0.5% Ophthalmic Solution

<obtain> Detail

- Travoprost Z Ophthalmic Solution (Restricted; Submit National Formulary Request)

<obtain> Detail

- Other

<obtain> Additional Details

[End Medications.]

## **Section 2.14.2.8. - Patient Education and Instructions**

[Begin Patient Education and Instructions.]

<obtain> Patient Education and Instructions

[Technical Note: Link to Site-Specific Patient Educational Materials.]

[Technical Note: Include links to printable illustrations that can be provided to the patient. Creating and storing annotated drawings templates electronically is a future implementation concern.]

[Technical Note: Link to Printable Illustration of External Eyes.]

[Technical Note: Link to Printable Illustration of Cornea.]

[Technical Note: Link to Printable Illustration of Anterior Segment.]

[Technical Note: Link to Printable Illustration of Lens.]

[Technical Note: Link to Printable Illustration of Retinas.]

[Technical Note: Link to Printable Illustration of Optic Nerves.]

[Technical Note: Link to Printable Illustration of Macula.]

[Technical Note: Link to Printable Illustration of Gonioscopy.]

[End Patient Education and Instruction.]

[End Plan.]

### **Section 2.14.3. - Consultation Requests**

[Begin Consultation Requests.]

<obtain> Consultation Requests

[End Consultation Requests.]

### **Section 2.14.4. - Surgery Requests**

[Begin Surgery Requests.]

<obtain> Surgery Requests

[End Surgery Requests.]

### **Section 2.14.5. - Return for Follow-Up**

[Begin Return for Follow-Up.]

[Section Prompt: Follow up location.]

[Technical Note: Allow user to add and remove locations in this list.]

- Retina Clinic
- Tele-Retina Clinic
- Other

<obtain> Description

[Section Prompt: Follow up timing]

<obtain> number of time increments

- Days
- Weeks
- Months
- Years

[Section Prompt: Dilation Required Next Visit.]

- Yes

No

[End Return for Follow-Up.]

[End Assessment and Plan.]

[End Eye Care Documentation Template.]

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# Appendix A - Existing Sample VA Artifacts

OVCP Functional Requirements April 15, 2015

The authorized user shall have the capability to document ocular care using various approved DoD devices / methods (ID: 178)

Link: [https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20\(VA%20and%20non-VA\)/non-VA%20Clinical%20Content/OVCP/Ocular\\_Clinical\\_Workflow\\_Report\\_Del1\\_v8\\_31Mar2015\\_Final%20Artifact.pdf](https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20(VA%20and%20non-VA)/non-VA%20Clinical%20Content/OVCP/Ocular_Clinical_Workflow_Report_Del1_v8_31Mar2015_Final%20Artifact.pdf)

File Name: Eye Care Wireframes 031915 Artifact

Link: [https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20\(VA%20and%20non-VA\)/non-VA%20Clinical%20Content/OVCP/Eye%20Care%20Wireframes%20031915%20Artifact.pdf](https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20(VA%20and%20non-VA)/non-VA%20Clinical%20Content/OVCP/Eye%20Care%20Wireframes%20031915%20Artifact.pdf)

File Name: Ocular\_Data\_Map\_Rpt\_Del7\_v7\_30Apr2015\_Final Artifact

Link: [https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20\(VA%20and%20non-VA\)/non-VA%20Clinical%20Content/OVCP/Ocular\\_Data\\_Map\\_Rpt\\_Del7\\_v7\\_30Apr2015\\_Final%20Artifact.pdf](https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20(VA%20and%20non-VA)/non-VA%20Clinical%20Content/OVCP/Ocular_Data_Map_Rpt_Del7_v7_30Apr2015_Final%20Artifact.pdf)

File Name: Opioid\_TSWF COT CPG Paper Backup Jan Apr 2017 Artifact

Link: [https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20\(VA%20and%20non-VA\)/non-VA%20Clinical%20Content/OVCP/Opioid\\_TSWF%20COT%20CPG%20Paper%20Backup%20Jan%20Apr%202017%20Artifact.pdf](https://vaww.infoshare.va.gov/sites/chio/KBS/cdsknart2017/Shared%20Documents/KNART%20Domain-Eye%20Care/Clinical%20Content%20(VA%20and%20non-VA)/non-VA%20Clinical%20Content/OVCP/Opioid_TSWF%20COT%20CPG%20Paper%20Backup%20Jan%20Apr%202017%20Artifact.pdf)

Figure 1. Motility and Alignment Document Tool



# Appendix B: Basic Laboratory Panel Definition

- Blood urea nitrogen
- Calcium
- Chloride
- CO<sub>2</sub> (Carbon dioxide, bicarbonate)
- Creatinine
- Glucose
- Potassium
- Sodium

# Appendix C: Acronyms/Abbreviations

AMD	Age-Related Macular Degeneration
AREDS	Age-Related Eye Disease Study
CCWP	Clinical Content White Paper
CDS	Clinical Decision Support
CO <sub>2</sub>	Carbon Dioxide
CPT	Current Procedural Terminology
CT	Computed Tomography
DICOM	Digital Imaging and Communications in Medicine
DSAEK	Descemet Stripping Automated Endothelial Keratoplasty
DSEK	Descemet's Stripping Endothelial Keratoplasty
EHR	Electronic Health Record
ENDS	Electronic Nicotine Delivery Systems
ETDRS	Early Treatment of Diabetic Retinopathy Study
HIV	Human Immunodeficiency Virus
HLA	Human Leukocyte Antigens
HL7	Health Level 7
ICD	Internal Classification of Diseases
ICG	Indocyanine Green
IOL	Intraocular Lens
KBS	Knowledge Based Systems
KNART	Knowledge Artifact
LASIK	Laser-Assisted in Situ Keratomileusis
LRI	Limbal Relaxing Incisions
MRI	Magnetic Resonance Imaging
NAG	Narrow-Angle Glaucoma
OAG	Open-Angle Glaucoma
OIIG	Office of Informatics and Information Governance
OVCP	Optimal Vision Care Prototype

PRK	Photorefractive Keratectomy
RAPD	Relative Afferent Pupillary Defect
RPC	Remote Procedure Call
SME	Subject Matter Expert
SNOMED CT	Systematized Nomenclature of Medicine Clinical Terms
TIA	Transient Ischemic Attack
TO	Task Order
VA	Department of Veteran Affairs
VAMC	VA Medical Center
YAG	Yttrium Aluminum Garnet